CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
J1316

Project Title
Oobleck: More Than Just Goo

Abstract

Objectives/Goals
What happens to the non-Newtonian fluid, oobleck, when it is exposed to extreme temperatures? The inspiration for this project came from finding out that there are many different uses for oobleck. Oobleck can be used to fill potholes, and the army is experimenting with putting it in their Kevlar vests. Oobleck can be used for so many things because of its many different properties. The experiment that was conducted, to see what happens to oobleck when it is put in extreme temperatures.

Methods/Materials
Oven set to 204.444º Celsius; Freezer set to -17.7778º Celsius; Dry Ice; Pyrex glass container; Corn starch; Water

Results
The first one was the freezer, and it resulted in an only slightly thicker product than the original. It only dropped by 7º, which is not a big change in temperature. There was no change in color either. Next was the dry ice. It had very similar results to the sample from the freezer. It was slightly thicker than the control, and it had no change in color. However, it did have 13º Fahrenheit difference in temperature. Next was the oven sample, it showed a 51º difference in temperature. It showed a difference in color. Instead of it being one solid color, it separated into two different layers, a cornstarch layer, and a layer of "gel"(for lack of a better word). The gel was a cloudy, off white color, and the inner layer was opaque, chalky, and also white. Last was the microwave sample, it was by far the only sample that had a major temperature difference. It increased in temperature by 146.5º, and showed the same color qualities as the oven sample. However the density and overall structure of this sample was very different from all the rest. It was similar to the oven sample in the way that it separated into two layers. Only in this sample, the harder layer was on the outside, and the gel like layer was on the inside.

Conclusions/Discussion
The sample that was put into the microwave could be sliced and made into an easy-to-make, non-toxic, decomposable plate. Some other ideas are maybe using the gel from the oven sample as a moisturizer. The microwave sample could be used as a new crash test dummy for testing cars. The gel from the microwave sample could also be used as temporary glue. The reason why is, the gel from the microwave sample was a lot stronger than the gel from the oven samples. These are some ideas that were thought up for the three, useable, varieties of oobleck.

Summary Statement
Exploring what the effects of four different temperatures are on oobleck.

Help Received
My Grandparents - Peter and Denise DeBono for letting me experiment at at their house and giving me a lot of support during my experiment. My Parents - Ken and Alicia Doolittle for encouraging me to try really hard at everything I do. Ms. Vanessa Weske for being such a great help when it came time to